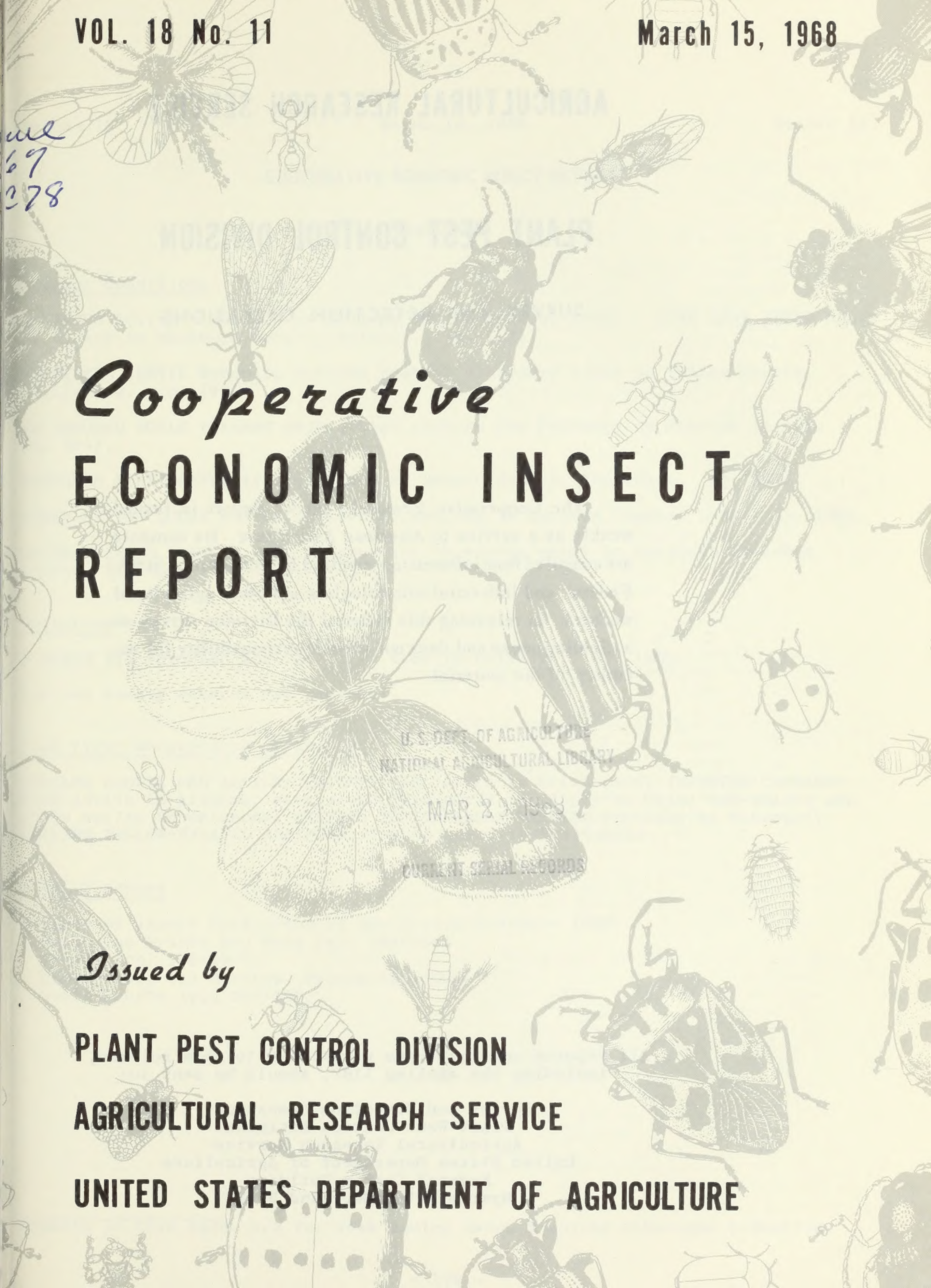
Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

VOL. 18 No. 11
March 15, 1968

ue
67
78



Cooperative
ECONOMIC INSECT REPORT

U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY
MAR 29 1968
CURRENT SERIAL RECORDS

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

All reports and inquiries pertaining to this release, including the mailing list, should be sent to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

Volume 18 March 15, 1968 Number 11

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG activity serious in Rolling Plains area of Texas. CORN LEAF APHID heavy in barley in Maricopa County, Arizona. (p. 181).

VEGETABLE WEEVIL becoming serious pest of dichondra lawns in Tulare County, California. (p. 182).

An ARMORED SCALE reached record high numbers for February on Florida citrus. (p. 184).

SOUTHERN PINE BEETLE killing pines in Morgan County, Tennessee. (p. 185).

SHEEP BITING LOUSE severe on several ranches in Edwards County, Texas. (p. 186).

WHITE-FRINGED BEETLES very destructive to winter wheat in northern Escambia County, Florida. (p. 187).

Detection

A HORSE FLY reported for the first time in Delaware. (p. 185).

For new county records see page 187.

Some First Occurrences of Season

ALFALFA LOOPER and ALFALFA CATERPILLAR larvae in California; IMPORTED CABBAGEWORM adults in Alabama; several NOCTUID MOTHS in flight in Ohio; RED-HEADED ASH BORER adults in Oklahoma; EASTERN SUBTERRANEAN TERMITE swarming in Missouri; WESTERN YELLOW-STRIPED ARMYWORM flights heavy in California.

Special Report

Summary of Insect Conditions in the United States - 1967
  Deciduous Fruits and Nuts (pp. 189-198).
  Citrus (pp. 198-200).
  Other Trop. and Subtrop. Fruits (p. 200).
  Small Fruits (pp. 200-202).

Reports in this issue are for week ending March 8 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance........181

Insects Affecting

Corn, Sorghum, Sugarcane........181
Small Grains........181
Turf, Pastures, Rangeland........182
Forage Legumes........182
Potatoes, Tomatoes, Peppers........183
Cole Crops........183
General Vegetables........183
Deciduous Fruits and Nuts........183
Citrus........184
Small Fruits........184
Ornamentals........184
Forest and Shade Trees........185
Man and Animals........185
Households and Structures........186

Beneficial Insects........186
Federal and State Plant Protection Programs........186
Insect Detection........187
Corrections........187
Light Trap Collections........187
Hawaii Insect Report........188

Summary of Insect Conditions in the United States - 1967

Deciduous Fruits and Nuts........189
Citrus........198
Other Trop. and Subtrop. Fruits........200
Small Fruits........200

WEATHER OF THE WEEK ENDING MARCH 11

HIGHLIGHTS: Most areas received light to moderate precipitation last week. The West continued mild and gradual warming over the East produced the warmest weather in more than a month.

PRECIPITATION: Intermittent rains produced 2 to 3 inches of precipitation along the Washington coast with 0.75 to 1 inch in the interior valleys. A vigorous storm brought heavy rains to south coastal California on Thursday and Friday. Los Angeles received over 3 inches in 24 hours. Weekend showers dumped up to 3 inches in parts of Arizona's White Mountains. Snow fell above 6,000 feet. Snowfall in the Rockies on Sunday ranged from about 6 inches in spots in Wyoming to a foot or so in New Mexico. Lesser amounts fell in the adjoining High Plains. Weekend rains produced beneficial amounts from Louisiana to Pennsylvania with heaviest totals in eastern Alabama, northern Georgia, and eastern Tennessee. These rains interrupted a 10-day dry spell in the two latter States. Most of the northern and central Great Plains, the Lakes region, New York, and New England received only light rains or snow flurries during the week.

TEMPERATURE: Mild weather continued over the West until midweek after which daytime temperatures were somewhat lower. Weekly mean temperatures averaged only a few degrees above normal. The warming trend over the northern Great Plains continued into the second week. A large area from Montana to Wisconsin and southward to northern Kansas averaged more than 10° above normal. Gradual warming over the South and East produced the warmest weather in several weeks. On Saturday Washington, D.C., registered 76°, the warmest temperature since November 12, 1967. The mild days and cool nights over the East produced weekly mean temperatures slightly above normal except along the gulf coast, over the Florida peninsula, and in New England where temperatures averaged a few degrees cooler than normal. A cold blast pushed into the Dakotas late Sunday night and at week's end had advanced far southward and eastward. Temperatures had plunged to below zero over northern Minnesota and portions of Upper Michigan and to freezing as far south as Kansas and the Ohio River. (Summary supplied by Environmental Data Service, ESSA.).

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - NEW MEXICO - Ranged 50-100 per linear foot on wheat in Curry and Quay Counties. (Mathews, Campbell). TEXAS - Activity remained serious in many Rolling Plains area counties February 26-March 1. Moderate in Wichita and Young Counties; damaging in some areas of Baylor, Childress, Cottle, King, Hardeman, Foard, Stonewall, Motley, and Hall Counties. Unchanged in Archer County; damage decreased in Dickens County. Activity spotted in Blacklands area with some increase in central area. (Boring et al.). OKLAHOMA - Counts per linear foot in wheat by area: Panhandle 10-100; southwest less than 1 to 150; west-central 0-25; central less than 5. Ranged less than 5 to 75 per linear foot in Harper, Alfalfa, Major, and Woods Counties; aphids more numerous on poor-growing sandy soils in most instances. (Okla. Coop. Sur.). KANSAS - Light in west-central area. (DePew). Averages ranged from 0-5 per row foot in Pratt, Kiowa, and Edwards Counties to 10-25 per row foot in Ford, Finney, Gray, Haskell, Seward, Stevens, Morton, Grant, and Kearny Counties; up to 200 per row foot in occasional field. Some severe damage in fields due to aphids and drought. (Simpson).

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Ranged up to 12 per row foot in Rooks County. (Gates). Larvae found in all wheat checked in south-central and southwest districts; damage light in most instances. Counts per linear foot in wheat by county: Kiowa 2-8, Pratt 1-2, Edwards 2-4, Ford 1-10, Finney 6-15, Gray 2-5, Haskell 0-2, Seward 0-5, Stevens 1-4, Morton 0-1, Grant 2-4. (Simpson).

BEET LEAFHOPPER (Circulifer tenellus) - ARIZONA - Light in 2 sugarbeet fields near Tolleson and New River, Maricopa County; curly top moderate in fields. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Heavy on untreated barley in Maricopa County; 80 percent of heads damaged. Light in most other fields. (Ariz. Coop. Sur.). NEW MEXICO - Light to heavy in old barley stands in Dona Ana County. (Campbell).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - First instars light in some untreated potato fields in Maricopa County. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - Survey negative in Conway County. (Boyer).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - ALABAMA - Survey made in one-acre cornfield near Hartselle, Morgan County; 35 percent of all stalks girdled and fallen in October 1967. Total of 100 girdled stubbles that previously contained larvae were dug; no live larvae found. Survival probably reduced due to severe winter in northern area. (McQueen). See CEIR 18(7):81 for name change.

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - KANSAS - Ranged 2-15 per row foot in wheat in Kiowa, Edwards, and Ford Counties. (Simpson). OKLAHOMA - Ranged 5-20 per linear foot in wheat in Washita County. (Okla. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Moderate on oats and barley in Queen Creek area, Maricopa County. (Ariz. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - TEXAS - Heavy in several wheat fields in Hardeman County. (Boring et al.).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Hard Red Spring wheat stubble survey conducted during September and October 1967 in 20 counties. Results based on percent cut stems indicate increase in population in all counties surveyed except Williams, Mercer, Oliver, and Golden Valley. Percent cut stems highest in northern area. Percent cut stems ranged 0.2-24.6; averaged 2.6 percent for all counties surveyed. Approximately 50 percent of infested stems will be cut. (Brandvik et al.). This replaces note in CEIR 18(9):125. (PPC).

BROWN WHEAT MITE (Petrobia latens) - KANSAS - Activity increasing in wheat in southwestern area; 25-300 per row foot in Finney and Gray Counties. Heavy leaf discoloration and some dead plants evident in heaviest infested fields. (DePew). OKLAHOMA - Ranged from less than 5 to 150 per linear foot in wheat in Texas and Beaver Counties; 0-20 per linear foot in most fields in north-central, northwest, and west-central areas. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Ranged 20-70 per row foot in wheat in Cotton and Tillman Counties. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Larvae heavy and damaging dichondra lawns in Visalia, Tulare County. This species becoming serious pest of dichondra in many locations. Also increasing after several years of low activity. (Cal. Coop. Rpt.).

FORAGE LEGUMES

PEA APHID (Acyrthosiphon pisum) - ARIZONA - Decreased to 200 per 100 sweeps in Maricopa County alfalfa; heavy, 1,000 per 100 sweeps, in Yuma area of Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Generally light on alfalfa. (N.M. Coop. Rpt.). TEXAS - Moderate in field of Austrian Winter peas in Hardeman County. (Boring, Wills). OKLAHOMA - Averaged 20 per square foot of crown area in alfalfa in Custer and Caddo Counties; 40 per square foot in Major County. (Okla. Coop. Sur.). ARKANSAS - Activity very light throughout State. (Boyer). MISSISSIPPI - Adults very light, 5 per square foot, in Pontotoc County alfalfa. (Dinkins).

LYGUS BUGS (Lygus spp.) - ARIZONA - Ranged 40-120 per 100 sweeps in alfalfa in Yuma and Gila Valley, Yuma County. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - MISSISSIPPI - Averaged 10 per square foot in new alfalfa stand in Pontotoc County. (Dinkins). ARKANSAS - Survey negative in Conway County. (Boyer).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Terminal damage averaged 60 percent in most alfalfa in eastern area of Salt River Valley, Maricopa County; 40 percent in western area. Most fields will soon be cut. (Ariz. Coop. Sur.).

ALFALFA WEEVILS (Hypera spp.) - CALIFORNIA - H. postica and H. brunneipennis increasing in alfalfa. Some treatment starting in Placer County. H. brunneipennis present throughout 1967 due to staggered single generation. Alfalfa beginning to grow in many locations. Cool weather may slow this growth and present favorable season for weevil damage. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - OKLAHOMA - Averaged 4 per square foot of crown area in 2 alfalfa fields in Custer and Caddo Counties. (Okla. Coop. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Full-grown larvae destroyed 20 percent of 30-acre stand of lupine at Gainesville, Alachua County, Det. by J. Strayer. (Strayer).

ALFALFA LOOPER (*Autographa californica*) - CALIFORNIA - Early to very early populations of this species and *Colias eurytheme* general but light on alfalfa in Fresno and Yolo Counties; damage evident. (Cal. Coop. Rpt.).

FALSE CELERY LEAF TIER (*Udea profundalis*) - CALIFORNIA - Larvae light on alfalfa in Fresno, Kerman, and Easton, Fresno County, and in Davis, Yolo County. (Cal. Coop. Rpt.).

POTATOES, TOMATOES, PEPPERS

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Moderate on 40 acres of young potato plants at Queen Creek, Maricopa County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - Egg laying on new potato foliage at Queen Creek, Maricopa County. (Ariz. Coop. Sur.).

COLE CROPS

GARDEN WEBWORM (*Loxostege similalis*) - ARIZONA - Moderate in cabbage west of Phoenix, Maricopa County. (Ariz. Coop. Sur.).

IMPORTED CABBAGEWORM (*Pieris rapae*) - ALABAMA - Adults in flight; egg laying on turnips, collards, cabbage, and other cole crops from Morgan County in northern area to extreme southern area. (McQueen).

CABBAGE LOOPER (*Trichoplusia ni*) - FLORIDA - No eggs or larvae found on cabbage in check plots or commercial fields at Sanford, Seminole County. (Green).

CABBAGE APHID (*Brevicoryne brassicae*) - ARIZONA - Heavy on 2.5 acres of cabbage in Tolleson area, Maricopa County. (Ariz. Coop. Sur.).

GENERAL VEGETABLES

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Controls applied to several lettuce fields at Yuma, Yuma County. (Ariz. Coop. Sur.).

THRIPS - NEW MEXICO - Ranged 2-10 per plant on onions in Dona Ana County (Elson); some damage especially on young lettuce plantings (Campbell). ARIZONA - *Thrips tabaci* light in most onion fields in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) - FLORIDA - Egg laying almost complete on peach trees at Gainesville, Alachua County; 30 percent hatched. Of hatched individuals, most are crawlers, few in first sedentary stage. This scale heavy on peach trees at Gainesville. (Kuitert).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - NEVADA - Heavy on apple in Reno and Sparks area, Washoe County. (Lauderdale).

PEAR PSYLLA (*Psylla pyricola*) - WASHINGTON - Heaviest flight to date, 2-5 per minute, in traps February 29 at Yakima, Yakima County. (Landis).

NOCTUID MOTHS - OHIO - First flights of season of *Lithophane unimoda*, *L. bethunei*, *L. hemina*, *Eupsilia morrisoni*, *E. vinulenta*, *E. cirripalea*, and *E. tristigmata* observed March 5 at Cincinnati, Hamilton County. (Rings).

CITRUS

Citrus Insect Situation in Florida - End of February - CITRUS RUST MITE (*Phyllocoptruta oleivora*) infested 74 percent of groves (norm 58 percent); 56 percent economic (norm 35 percent). Population decreased but is still in high range and much above normal for February on leaves and fruit. It will continue near current high level. Highest districts south, west, and central. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 37 percent of groves (norm 26 percent); 13 percent economic (norm 8 percent). Population in low range and slightly above February normal. Moderate increase expected. Highest districts east and south. CITRUS RED MITE (*Panonychus citri*) infested 37 percent of groves (norm 34 percent); 10 percent economic (norm 12 percent). Population low and near normal for February. Increase expected. Highest districts east and central. SIX-SPOTTED MITE (*Eotetranychus sexmaculatus*) infested 7 percent of groves; 1 percent economic. Slight increase expected. GLOVER SCALE (*Lepidosaphes gloverii*) infested 73 percent of groves (norm 80 percent); 7 percent economic (norm 20 percent). Population below average and moderate. Increase expected. Highest districts east, west, and south. PURPLE SCALE (*L. beckii*) infested 67 percent of groves (norm 79 percent); 2 percent economic (norm 11 percent). This scale will remain below normal and in low range. Highest district east. YELLOW SCALE (*Aonidiella citrina*) infested 65 percent of groves (norm 63 percent); 1 percent economic (norm 15 percent). Population below normal and in low range but will increase. Highest district east. BLACK SCALE (*Saissetia oleae*) infested 42 percent of groves (norm 28 percent); 20 percent economic (norm 13 percent). Population above normal for February. Expected to decrease to low range and be of little concern through March. Highest districts central and east. An ARMORED SCALE (*Unaspis citri*) now infests 16 percent of groves, a record high number for February. Further increase expected. WHITEFLIES infested 74 percent of groves; 15 percent economic. Little change expected from current low level normal for February. APHIDS have been retarded by cool weather but may be expected to increase rapidly the latter part of March. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

COTTONY-CUSHION SCALE (*Icerya purchasi*) - CALIFORNIA - Locally heavy in dooryard citrus in Ojai, Ventura County. Vedalia (*Rodolia cardinalis*) and a cryptochaetid fly (*Cryptochaetum iceryae*) very heavy in these infestations. (Cal. Coop. Rpt.).

PURPLE SCALE (*Lepidosaphes beckii*) - CALIFORNIA - Medium on Bearss lime trees in nursery in Vista, San Diego County. This scale slowly increasing its range in coastal area of southern part of State. (Cal. Coop. Rpt.).

SMALL FRUITS

STRAWBERRY LEAF ROLLER (*Ancylis comptana fragariae*) - CALIFORNIA - Larvae, possibly this species, medium on 5 acres of strawberry plants in Caruthers, Fresno County. (Cal. Coop. Rpt.).

LEAFHOPPERS (*Erythroneura* spp.) - ARIZONA - Heavy on new growth in grape vineyard near Queen Creek, Maricopa County. (Ariz. Coop. Sur.).

ORNAMENTALS

CALIFORNIA RED SCALE (*Aonidiella aurantii*) - CALIFORNIA - Heavy on privet in Fresno, Fresno County. Infestations erratic this year probably due to upset in parasite-predator balance. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) - FLORIDA - Taken on stems of *Plumeria* sp. in nursery at Hastings, St. Johns County, February 2. (Graham). This is a new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

AN ARMORED SCALE (Fiorinia fioriniae) - FLORIDA - Adults taken on weeping bottlebrush, Callistemon viminalis, at nursery in Ft. Lauderdale, Broward County, February 5. (Clinton). This is a new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - All stages severe on 45 of 50 velvetplants, Gynura aurantiaca, at nursery in Apopka, Orange County, March 1. (Kipp). This is a new Florida Department of Plant Industry host record. (Fla. Coop. Sur.).

A WHITEFLY (Dialeurodes kirkaldyi) - FLORIDA - Larvae and pupae common on Jasminum spp. at Deerfield Beach, Broward County, February 27. Plants in 200 cans restricted from sale because of this whitefly and sooty mold. (Clinton).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Egg-filled bags heavy on juniper, cypress, and other ornamental plantings in several areas of Morgan County; no egg hatch. (Rutledge et al.).

CARMINE SPIDER MITE (Tetranychus telarius) - ARIZONA - Heavy on pyracantha and juniper at Tucson, Pima County. (Ariz. Coop. Sur.).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TENNESSEE - Killing pines in Morgan County. Groups of 8, 10, and 12 dying trees scattered over county. Driest weather for January and February on record precipitating this situation. (Mullett).

RED-HEADED ASH BORER (Neoclytus acuminatus) - OKLAHOMA - Adults emerging from ash trees in Payne County. (Okla. Coop. Sur.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - IOWA - Damaged pine Christmas tree plantings in Monona County; nearly every tree heavily damaged in 2 plantings. (Iowa Ins. Sur.).

MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. March 3-9, 1968. Total of 92 cases reported in portion of Barrier Zone in Republic of Mexico as follows: Territorio sur de Baja California 17, Sonora 24, Chihuahua 1, Coahuila 2, Tamaulipas 48. Total of 6 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operations underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 168,000, Mexico 88,304,000. (Anim. Health Div.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Averaged less than one per head on 2-year-old steers in Payne County; light on cattle in Mayes County. (Okla. Coop. Sur.). ALABAMA - Larvae ranged 1-10 (average 5-6) per animal in 25 beef calves in Russell County past 30 days. (Williams).

NORTHERN CATTLE GRUB (Hypoderma bovis) - IOWA - Present in backs of cattle in central and west-central areas. (Stockdale, Mast).

A HORSE FLY (Tabanus sackeni) - DELAWARE - Two males collected at blacklight trap in White Clay Creek, New Castle County, by R. Bergner, August 1, 1967. Det. by E. P. Catts. This is a new State record. (Burbutis).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - VIRGINIA - This species and Solenopotes capillatus light to moderate on beef cattle in Montgomery County. (Turner).

HOG LOUSE (Haematopinus suis) - IOWA - Moderate on hogs in Adair County. (Iowa Ins. Sur.). OKLAHOMA - Moderate on swine in Mayes County. (Okla. Coop. Sur.).

SHEEP BITING LOUSE (Bovicola ovis) - TEXAS - Severe on several ranches near Rocksprings, Edwards County. (Neeb).

BROWN RECLUSE SPIDER (Loxosceles reclusa) - OKLAHOMA - Observed in homes in Payne County. (Okla. Coop. Sur.).

BLACK WIDOW SPIDER (Latrodectus mactans) - NEVADA - Emerged from hibernation and entered homes in Reno and Sparks area of Washoe County during warm weather. (Nev. Coop. Rpt.).

HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MISSOURI - Swarming adults numerous throughout central area. (Munson).

BENEFICIAL INSECTS

LADY BEETLES - MISSISSIPPI - Hippodamia convergens active on Pontotoc County alfalfa. (Dinkins). ALABAMA - Light numbers of H. convergens adults observed in flight in Lee County during warm periods. (McQueen). ARIZONA - Larvae of unspecified species abundant in most barley in Maricopa County. (Ariz. Coop. Sur.).

SYRPHID FLIES - ALABAMA - Adults very heavy and laying eggs on pine, spirea, and other plants throughout central and southern areas past 10 days; no larvae observed. (McQueen). ARIZONA - Larvae moderate in young barley field on Salt River Indian Reservation, Maricopa County; feeding on aphids. (Ariz. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CHAFF SCALE (Parlatoria pergandii) - CALIFORNIA - Infestation in Nicolaus, Sutter County, treated. Known infested citrus trees and all nearby citrus trees (total of 11) sprayed. (Cal. Coop. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Of 229 blocks inspected in Tustin, Orange County, to date, total of 126 found infested. There is some evidence that main body of infestation is about delimited. If so, 300+ blocks and 50+ acres of commercial citrus would be subject to treatment. (Cal. Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Live larvae found inside cotton bolls on soil surface in field at Tolleson, Maricopa County; volunteer cotton will be major problem in Salt River Valley area due to light discing. (Ariz. Coop. Sur.).

RANGE CATERPILLAR (Hemileuca oliviae) - NEW MEXICO - Egg clusters averaged 2 per square yard on 320 acres at Capitan, Lincoln County. Each cluster averaged 102 eggs. (Judd).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - CALIFORNIA - Adults collected in light trap February 24 at La Grange, Stanislaus County. Heavy flights reported and collected in light traps in Yolo County during mid-February. These are first known flights of season; flights usually occur in late April. In 1967 flight began in March, which was relatively early. As predicted, this armyworm caused major damage to various crops including plum, pear, and other trees in 1967 which are very unusual hosts. This pest was probably the most severe on record during 1967. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - FLORIDA - Larvae destroyed 80 percent of winter wheat in some fields, down to 10 percent in other fields, in belt across northern Escambia County during early March. Det. by D. H. Habeck. Many of these fields planted to soybeans in 1967. *Graphognathus* spp. plentiful in end rows and fence rows in these fields at that time. (Strayer).

INSECT DETECTION

New State Record

A HORSE FLY (*Tabanus sackeni*) - DELAWARE - Two males collected at blacklight trap in White Clay Creek, New Castle County, by R. Bergner, August 1, 1967. Det. by E. P. Catts. (p. 185).

New County Records

WALNUT HUSK FLY (*Rhagoletis completa*) - WASHINGTON - Skamania County. (p. 195).

PECAN WEEVIL (*Curculio caryae*) - TEXAS - Taylor County. (p. 196).

EUROPEAN RED MITE (*Panonychus ulmi*) - COLORADO - Mesa County. (p. 197).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville - 3/4, 5, BL - Armyworm (*Pseudaletia unipuncta*) 4, black cutworm (*Agrotis ipsilon*) 1, granulate cutworm (*Feltia subterranea*) 1, variegated cutworm (*Peridroma saucia*) 1. Monticello - 2/28-3/6, 2BL - Armyworm 23, black cutworm 7, cabbage looper (*Trichoplusia ni*) 3. Sanford - 2/27-28, BL - Armyworm 7, black cutworm 3, cabbage looper 2, granulate cutworm 21. TEXAS - Brownsville - 3/2-8, 2BL, 45-77°F., 0.86 precip. - Armyworm 53, black cutworm 128, cabbage looper 3, granulate cutworm 19, salt-marsh caterpillar (*Estigmene acrea*) 2, variegated cutworm 49, yellow-striped armyworm (*Prodenia ornithogalli*) 5.

CORRECTIONS

CEIR 18(8):93 - A PLATYPODID BEETLE (Platypus quadridentatus) - Line 2 should read:...adults heavy in *decadent* bluejack oak...

HAWAII INSECT REPORT

Vegetables - MELON FLY (*Dacus cucurbitae*) larval and adult damage severe to 0.25 acre of squash at Koko Head, Oahu; severe oviposition damage and/or heavy larval infestations on all fruits. Oviposition damage light on cucumbers in same area. All stages of IMPORTED CABBAGEWORM (*Pieris rapae*) and CABBAGE LOOPER (*Trichoplusia ni*) moderate in 10 acres of cabbage and cauliflower from upper Omaopio to upper Kula, Maui, at 2,400-3,600 feet elevation. (Miyahira). Larvae of LEAF MINER FLIES (*Liriomyza* spp.) and BEET ARMYWORM (*Spodoptera exigua*) generally light in green onion fields at Waianae, Koko Head, Waimanalo, and Kahuku, Oahu. (Funasaki, Toyama).

Fruits - BARNACLE SCALE (*Ceroplastes cirripediformis*) nymphs and adults decreased in 150 acres of passion-fruit in Kahului, Maui; generally light but medium in few spots. Nymphs and adults of a PIT SCALE (*Asterolecanium pustulans*) moderate, heavy in scattered spots, in 150 acres of passion-fruit in Kahului, Maui. (Miyahira).

Ornamentals - GREEN SCALE (*Coccus viridis*) numerous on Natal-plum (*Carissa grandiflora*) on February 11 near college campus in Honolulu, Oahu, for new host record. (Drake).

Forest and Shade Trees - FULLER ROSE WEEVIL (*Pantomorus cervinus*) adults light to medium and damaging foliage of *Acacia koaia* (Yoshioka), and all stages of COTTONY-CUSHION SCALE (*Icerya purchasi*) light on twigs of mamane (*Sophora chrysophylla*) at Kawaihae-uka, Hawaii Island (Yamayoshi).

General Pests - Late nymphs of SOUTHERN GREEN STINK BUG (*Nezara viridula*) medium on asystasia and other weeds in one-acre area near Hanauma Bay, Oahu; mostly nymphs light on cheeseweed and asystasia at Ewa. (Davis et al.).

Man and Animals - Total of 302 *Aedes vexans nocturnus* and 10,073 *Culex pipiens quinquefasciatus* taken in 49 light traps on Oahu during February. *A. vexans nocturnus* light in all areas and *C. pipiens quinquefasciatus* heaviest in Kailua. (Mosq. Cont. Br., Dept. of Health).

Beneficial Insects - Adults of a SCIOMYZID FLY (*Sepedon macropus*) active in small taro patch at Waianae, Oahu; liverfluke snail population low. (Davis).

Miscellaneous - RED-SHOULDERED STINK BUG (*Thyanta accerra*) nymphs and adults light, 4 per 5 sweeps, on swollen fingergrass in Honolulu Airport area, Oahu. Live adult taken in yard in Hawaii Kai area of Honolulu was first specimen found in southeastern end of Oahu. (Funasaki, Nakao).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1967

(continued from page 170)

DECIDUOUS FRUITS AND NUTS

Highlights:

CODLING MOTH was mostly light and caused little damage to treated fruit from the States reporting, but was damaging to untreated fruit. PEACH TREE BORER and LESSER PEACH TREE BORER were two of the most destructive pests of peach, plum, and cherry in Alabama. PEACH TWIG BORER increased in Colorado and was unusually heavy in peach orchards in Wasco County, Oregon. RED-HUMPED CATERPILLAR was the worst on record on many hosts in California. FALL WEBWORM was heavier and more widespread on several hosts in southern Indiana than in 1966 and HICKORY SHUCKWORM was the major pest of pecans throughout Alabama. APHIDS generally were very damaging in California and were severe on walnuts in Washington and Utah Counties, Utah. GREEN PEACH APHID was very abundant in all the eastern peach orchards of Virginia during the spring. ROSY APPLE APHID damaged more fruit in Colorado in 1967 than in past years and caused more of a problem than in recent years in Utah. WHITE PEACH SCALE continued a serious problem on commercial peaches in northern Florida. PEAR PSYLLA presented a significant problem in the Willamette Valley of Oregon. APPLE MAGGOT activity increased in northern Pennsylvania and populations were found farther south than normal in Illinois. PLUM CURCULIO caused serious damage to some cherries, plums, and apples in Ohio during June and was one of the most serious pests on peach, plum, and apple fruit in Alabama. PECAN WEEVIL was very destructive to a few groves late in the season in Monticello, Florida. EUROPEAN RED MITE continued to be a major control problem in New York and was one of the most expensive fruit pests to control in Michigan. Unspecified MITES remain the most difficult pest control problem on apples in Illinois. A SPIDER MITE was the most abundant on record in orchards in the Milton-Freewater area of Oregon. PEAR LEAF BLISTER MITE heavily damaged many pear trees in the Bitterroot Valley area of Montana.

CODLING MOTH (Carpocapsa pomonella) adults were first taken in bait traps on June 16 in MAINE. Pupation of overwintered larvae was 10 percent in insectary material on June 16. An above average second brood occurred from the first week of August until August 21. Damage was almost nonexistent in well-sprayed apple orchards in NEW YORK, but a damage potential was indicated in abandoned orchards or in orchards where controls were poorly timed or applied. Infestations were typically severe in unsprayed blocks and backyard plantings in NEW JERSEY, but very little damage occurred in commercial orchards. The first overwintering adult in DELAWARE emerged from a Kent County cage May 28, the latest emergence recorded in 37 years. This species was almost nonexistent in commercial orchards in the State. Codling moth adults emerged in cages at Hancock, MARYLAND, on May 24 but populations generally were well controlled in commercial apple orchards. In VIRGINIA infestations on apple were about normal and were no more troublesome than in the past few years. Adult emergence began in northeastern OHIO in late April and peaked during the first week of June. Full-grown larvae of the first generation began to appear under collection bands on apple trees the third week of June and first-generation adult emergence began July 10. Larvae caused damage to commercial orchards under regular spray programs. Spring adults first emerged in cages June 5 in southwest MICHIGAN and a prolonged spring-brood emergence due to weather continued well into July in the southwest area. Spray programs generally provided good control of first and second-brood larvae in commercial orchards. Codling moth adults were first taken in a blacklight trap at Madison, WISCONSIN, May 26. Populations did not reach high levels, but a gentle peak in the moth flight occurred the second week of June. Moths continued to be taken in blacklight traps until September 25.

Codling moth adult emergence from hibernation was prolonged due to unfavorable weather in ILLINOIS, but cool temperatures reduced egg laying. This species was generally well controlled. In MISSOURI numbers were light in sprayed orchards, but some damage occurred in the southeast area in May. Damage was common in unsprayed orchards. Codling moth was no problem in well-sprayed orchards in KANSAS but was evident in untreated apples. Larvae were heavy in apples in Payne County, OKLAHOMA, and caused heavy damage to improperly treated fruit in NEW MEXICO. Most of the fruit in New Mexico was killed by a heavy frost in May. Populations were kept at low level on apple by timing control applications according to the moth catch in sex lure traps in COLORADO. Codling moth was the lightest in 14 years in northern and central UTAH, but damage was common in unsprayed home orchards. Infestations were more general but lighter throughout CALIFORNIA in 1967. In OREGON adults emerged May 15 in Hood River County and peaked in late May. In early June several males were collected in sex lure traps in a commercial orchard. Above average summer temperatures probably shortened residual effectiveness of cover sprays as some orchardists reported stings and larvae by harvest. The first moths were taken in sex lure traps May 1 in WASHINGTON compared with April 18 in 1966. The third brood caused commercial damage in Yakima County, an unusual occurrence, and damaged backyard apples in Whitman County in September.

ORIENTAL FRUIT MOTH (Grapholitha molesta) was difficult to find in well-managed orchards in NEW JERSEY, but much damage occurred to unsprayed blocks and backyard plantings. Numbers were heavy in unsprayed apples as indicated on banded trees in DELAWARE and were less than normal in VIRGINIA as no commercial damage occurred to the peach crop. Populations greatly increased late in the season. Infestations were well controlled in ILLINOIS as indicated by 6 damaged peaches found out of 500 examined on a tree just before harvest during a 30-orchard survey. In MISSOURI numbers were light in peaches in the southeast area, but some apples were damaged in an unsprayed orchard in the central area. Oriental fruit moth ranged light to heavy on native plum trees throughout OKLAHOMA and was taken in bait traps in COLORADO during most of the summer. Numbers were heavy in July and August, but few larvae were found in the peach fruit at harvest in Colorado where damage was less than 1 percent. In OREGON no adults or infested peaches have been found in the previously infested areas of Wasco, Multnomah, Marion, and Polk Counties since 1962. This species caused much damage to peaches and other stone fruits in local areas of CALIFORNIA.

PEACH TREE BORER (Sanninoidea exitiosa) caused moderate damage in commercial orchards in NEW JERSEY. No serious infestations were observed in VIRGINIA. Some isolated peach trees were severely damaged in several orchards due to poorly timed control treatments. Peach tree borer was one of the most destructive pests of peach, plum, and cherry trees throughout ALABAMA and was one of the most important pests infesting peach in TEXAS. Occasional damage occurred in OKLAHOMA and larvae killed some trees in Bernalillo, Sandoval, and Valencia Counties, NEW MEXICO. Peach tree borer caused economic damage in UTAH. LESSER PEACH TREE BORER (Synanthedon pictipes) was one of the most destructive pests of peach, plum, and cherry trees throughout ALABAMA. Populations increased during 1967, especially in south-central and eastern areas of VIRGINIA, as many peach trees were killed or severely damaged. Lesser peach tree borer caused moderate damage in commercial orchards in NEW JERSEY.

PEACH TWIG BORER (Anarsia lineatella) first-brood larvae heavily damaged unsprayed peach orchards in Douglas County, WASHINGTON, in June and numbers were unusually heavy in peach orchards in The Dalles area of Wasco County, OREGON. Populations were normal in other fruit areas of the State. Peach twig borer was a continuing problem all year in CALIFORNIA and was medium in peach fruits in Clark County, NEVADA, in July and August. Damage was economic throughout UTAH and populations increased markedly over previous years in COLORADO although the peach crop was reduced by freeze. CLIMBING CUTWORMS damaged orchards, with up to 20 percent fruit bud destruction in one Putney orchard in Windham County, VERMONT. Another orchard in South Hero, Grand Isle County, was also damaged.

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) was moderate in one West Paris, MAINE, location in late July where many second-brood larvae caused much damage. Controls were effective and the problem disappeared. Infestations on apple were about normal, although numbers were very low and damage was negligible in VIRGINIA. Although normally a minor pest of peaches, this leaf roller damaged 10 percent of mid-season peach varieties in the Piedmont orchards. Damage was almost nonexistent in well-sprayed apple orchards in NEW YORK, but a damage potential was apparent in abandoned orchards or in orchards where controls were poorly timed or applied. Red-banded leaf roller caused very little damage in commercial orchards in NEW JERSEY and ILLINOIS in 1967. In 29 of the outstanding commercial apple orchards in Illinois, 1 leaf roller damage per 1,000 occurred and half of the damaged fruit was found in one orchard. Infestations were light in some untreated orchards in KANSAS.

OLETHREUTID MOTHS (Grapholitha spp.) were troublesome in some VERMONT areas and LESSER APPLEWORM (G. prunivora) infested backyard prunes at Astoria in Clatsop County, OREGON. GREEN FRUITWORM (Lithophane antennata) damaged some fruit in unsprayed apple orchards at Hancock, MARYLAND, during late May and was evident in several plantings in MAINE where damage was generally light. Adults of a PHYCITID MOTH (Acrobasis tricolorella) began emerging June 7 in Oceana County, MICHIGAN, and emergence peaked in late June. First instars infested fruit in Oceana County on June 23. Some problems continued for northwest area cherry growers during 1967. Adults of a CHERRY LEAF MINER (Nepticula slingerlandella) began emerging at Lawrence in Van Buren County, Michigan, on May 14 and emergence peaked in early June. Little economic loss occurred. Infestations were confined to a few Berrien and Oceana County orchards in addition to research orchards in Van Buren County.

TENT CATERPILLARS (Malacosoma spp.) were very damaging to prune and walnut plantings in isolated locations in northern CALIFORNIA. WESTERN TENT CATERPILLAR (M. pluviale) was very spotty in western OREGON, being the heaviest in Washington and Yamhill Counties. FOREST TENT CATERPILLAR (M. disstria) was numerous in home orchards in northern and central UTAH with light to moderate damage. Young larvae of EASTERN TENT CATERPILLAR (M. americanum) were found on apple in Monmouth, MAINE, on May 6 but were not serious.

FALL CANKERWORM (Alsophila pometaria) damaged walnut trees in Solano County and apples and pears in Tuolumne County while RED-HUMPED CATERPILLAR (Schizura concinna) was very prevalent and the worst on record on many hosts in CALIFORNIA. NAVEL ORANGEWORM (Paramyelois transitella) was very severe on walnut and almond fruit in the same State. FILBERTWORM (Melissopus latiferreanus) adults emerged on July 2 in filbert orchards in Lane County, OREGON, and peaked on July 24 and again on August 13. Larvae infested Italian prunes in Marion and Polk Counties.

The red-headed strain of FALL WEBWORM (Hyphantria cunea) appeared earlier than normal in northeastern ARKANSAS in early May. The black-headed strain in general was light in the southern area but became heavy on pecan in the southeast in September. Infestations on hickory, walnut, and fruit trees were heavier and more widespread in 1967 than in 1966 in the southern third of INDIANA. Small webs were first evident during early July in the southern areas and reached a peak of 3-18 per tree by late July. Egg hatch occurred in the extreme northern counties of the north-central and northeastern districts during late July, but very dry conditions in these areas held populations very low. Most colonies failed to make large webs. It was lighter in 1967 in KANSAS but heavy on pecan, black walnut, and persimmon trees in the central and eastern half of OKLAHOMA from early July through October. This species was heavier in 1967 than in 1966 in most areas of the Willamette Valley, OREGON. Up to 100 tents were observed on many black walnut trees. Larvae webbed and defoliated wild cherry and seedling apple trees in Ferry and Stevens Counties, WASHINGTON, in August.

PECAN NUT CASEBEARER (Acrobasis caryae) was especially numerous on pecans during 1967 in FLORIDA. Damage was very general and more serious than in 1966. The first and second generations were heavy on pecans and accounted for much of the nut losses in central and southern ALABAMA. Populations ranged light to heavy in Guadalupe County and the north-central area of TEXAS. This pest was reported for the first time in Pecos County. Pecan nut casebearer was first reported in late May in south-central OKLAHOMA and was light in most areas throughout the summer. This species was less numerous in KANSAS in 1967 than in 1966, but PECAN LEAF CASEBEARER (*A. juglandis*) caused severe localized damage in a few pecan groves in FLORIDA.

HICKORY SHUCKWORM (*Laspeyresia caryana*) moths began to emerge from cages on March 11 and emergence peaked on April 5 in FLORIDA. Populations in unsprayed pecan orchards were very high during the entire season and midsummer "drop" loss was especially severe. Hickory shuckworm was again the major pest of pecans throughout ALABAMA with serious nut loss and quality reduction. This species caused concern to pecan growers again in 1967 in north-central, central, northeast, and south-central OKLAHOMA. Infestations ranged 2-80 percent in scattered orchards and were active from early September through early November throughout the State.

WALNUT CATERPILLAR (*Datana integerrima*) was abundant on walnut at Fargo, NORTH DAKOTA, and caused occasional damage in OKLAHOMA. During late July and early August, defoliation of walnut trees and light damage to pecans occurred in southern MISSOURI. Larvae in IOWA defoliated a large percentage of black walnut trees. Larval feeding on black walnut foliage was first reported in the third week of July in OHIO, and defoliation continued through mid-August. By then larvae were nearly full grown and defoliation was most frequently reported. Incidences were reported from 11 counties, but severe defoliation was common across most of the State, except possibly the southeastern section.

APPLE APHID (*Aphis pomi*) ranged moderate to heavy in many areas of MAINE but was generally spotty. Stem mothers were generally light, although winged migrants appeared earlier than usual. Damage was kept to a minimum by effective controls. Infestations damaged sucker growth in southern NEW JERSEY until controlled in the early summer. This species was more abundant in 1967 than in past years. Terminal infestations were heavy in several apple orchards in Washington County, MARYLAND. Apple aphid was prevalent and difficult to control on apples in VIRGINIA. Numbers began increasing on apple foliage throughout OHIO in the latter half of June with vegetative shoots and water sprouts the most heavily infested. No problems were caused where regular spray programs were followed despite high numbers in some orchards during the spring and early summer. Apple aphid infested unsprayed apple trees in Benton County, WASHINGTON, in May and was one of the dominant aphids in CALIFORNIA.

ROSY APPLE APHID (*Dysaphis plantaginea*) first appeared on apples in Washington County, MARYLAND, in early April. In June heavy numbers occurred on unsprayed or poorly sprayed apples in the Hancock area. Numbers were prevalent as usual on apple in VIRGINIA but were effectively controlled. Damage was negligible. Egg hatch began in central OHIO the second week of April. From mid-May through early June conditions favored the development of large populations on unsprayed trees. Rosy apple aphid began leaving the leaves to feed on apple fruit in late May and early June and malformed fruit resulted. Curled leaves with 100 or more aphids per leaf occurred the first week of June in the northeastern area. Infestations were generally light in most areas of KANSAS, but were abundant in all areas of western COLORADO as more fruit was damaged in 1967 than in past years. This species caused more of a problem than in recent years in UTAH. Damage was evident in Utah County and spotted and severe in Salt Lake, Grand, Emery, Washington, and other counties. Rosy apple aphid was one of the dominant aphids in CALIFORNIA and was heavy on apple trees in the Roseburg area of Douglas County, OREGON, during June. In WASHINGTON alates ranged 100-200 per tree per day on caged peach trees May 18-26 in Yakima County.

WOOLLY APPLE APHID (*Eriosoma lanigerum*) was moderate but normal in UTAH. In ARIZONA infestations were heavy on apple trees in nurseries at Douglas, Cochise County, and in Graham County yards during late June and early July. This aphid was moderate on apples in Hall County, TEXAS, and was generally light in most areas of KANSAS. This species was again the major pest to apples in ALABAMA, damaging the root system above and below the ground line.

GREEN PEACH APHID (*Myzus persicae*) was generally heavy on stone fruits during the wet, cool spring in NEW JERSEY, but no damage was observed. In MARYLAND numbers were medium to heavy in a few peach orchards in Washington County. Green peach aphid was very abundant in all peach orchards in eastern VIRGINIA during the spring of 1967, although it had not been a peach pest for many years in the State. Much damage occurred before controls were applied. Numbers severely curled peach foliage during the spring in the fruit-growing areas of NEW MEXICO, especially where fruit and controls were absent. Infestations were light on peaches in COLORADO as a freeze reduced the crop. In UTAH green peach aphid curled peach foliage in the "Dixie" area of Washington County, in Moab, Grand County, in Alton and Glendale, Kane County, and in central and northern orchards. Most damage occurred in the spring. This pest was heavy on *Prunus* spp. in northwestern NEVADA in May and early June and was one of the dominant APHIDS in CALIFORNIA. Alates ranged 100-200 per tree per day on caged peach trees May 18-26 in Yakima County, WASHINGTON. BLACK CHERRY APHID (*M. cerasi*) ranged moderate to abundant on unsprayed cherry orchards during May in Benton County, Washington. In Utah black cherry aphid curled sweet cherry foliage mostly in the spring in the Hurricane and Toquerville areas, Washington County, in Moab, Grand County, in Brigham City and Willard area, Box Elder County, and in many home orchards in Salt Lake County. Infestations were moderate in Juab and Emery Counties.

BLACK-MARGINED APHID (*Monellia costalis*) was light on pecan trees in Safford Valley of Graham County, ARIZONA, during mid-May and caused occasional damage in OKLAHOMA. This species and BLACK PECAN APHID (*Myzocallis caryaefoliae*) were serious pests to pecans in southern and central ALABAMA. In TEXAS black pecan aphid was moderate to heavy and caused partial defoliation of pecan trees in Ward and Gillespie Counties. Black pecan aphid caused occasional damage in OKLAHOMA but was one of the dominant aphids in CALIFORNIA. FILBERT APHID (*M. coryli*) was very numerous in the spring and spotted in the fall on filberts in Davis, Salt Lake, and Cache Counties, UTAH, and numerous on ornamental filberts at Logan, Cache County, and Salt Lake City, Salt Lake County. BLACK PEACH APHID (*Brachycaudus persicaecola*) killed several nonbearing trees in one Camden County orchard in NEW JERSEY and was one of the dominant aphids in CALIFORNIA.

Unspecified APHIDS were not serious where apple trees were cared for in RHODE ISLAND. *Monellia* spp. were light in northern FLORIDA in 1967 except for local outbreaks in June. *M. nigropunctata* was a serious pest on pecans in southern and central ALABAMA. Other APHIDS caused much damage in central and western MISSOURI, probably due to few spray applications because of a light fruit set. Aphids were severe on English walnuts during the spring in Washington and Utah Counties, UTAH, and severely infested black walnut trees in the spring and early summer throughout the State. Aphids were numerous on pecan trees in Washington County during the spring. Aphids in general were late but very damaging in CALIFORNIA. AN APHID (*Anuraphis helichrysi*) was heavy on prunes in the Wenatchee area of Chelan County, WASHINGTON, and was heavy on *Prunus* spp. in northwestern NEVADA in May and early June.

PEAR PSYLLA (*Psylla pyricola*) eggs were first observed in Hood River County, OREGON, on February 9. Due to cool spring temperatures, the first nymphs did not appear until the first week of April. Fourth and fifth instars and a few first-generation adults were noted by mid-May. Due to the general use of early season control programs and an abnormally warm season, little difficulty was encountered in maintaining relatively low population levels throughout the growing season. Populations increased to damaging levels in all pear-growing areas during harvest. In the Willamette Valley, pear psylla was a significant problem in many pear orchards and was not satisfactorily controlled by previously effective treatments. Populations varied throughout the northern part of CALIFORNIA. Adults and freshly laid eggs were common on pear twigs in an orchard in Wayne County, MICHIGAN, on April 4. This species was widespread in fruit areas and especially common in many backyard and unsprayed plantings. Commercial orchardists generally maintained the usual good control. This is the third year that complaints of pear damage in noncommercial plantings have been more common than usual in RHODE ISLAND.

WHITE APPLE LEAFHOPPER (*Typhlocyba pomaria*) was heavier than normal in MICHIGAN for the second consecutive year. Problems were limited in some fruit areas, especially Kent County where high nymphal populations and some adults discolored foliage in a few orchards near Sparta by mid-August. White apple leafhopper was numerous in some Weber, Salt Lake, and Cache County home orchards in UTAH. Unspecified LEAFHOPPERS were very prevalent and mainly damaged young apple plantings in treated orchards in VIRGINIA. A LEAFHOPPER (*Empoasca* sp.) was very heavy on neglected apple trees in mid-July in RHODE ISLAND and another LEAFHOPPER (*Oncometopia nigricans*) was common on peach trees at Tampa, FLORIDA, all winter in late 1966 and early 1967. PRUNE LEAFHOPPER (*Edwardsiana prunicola*) was numerous on prune trees in the Brigham City and Willard area of Box Elder County, UTAH.

SAN JOSE SCALE (*Aspidiotus perniciosus*) populations have been increasing in the tops of many fruit trees in NEW YORK for several years. This is probably due to the lack of specific control applications at the half-inch green stage and poor spray coverage in the postbloom stage. This species presented a problem similar to 1966 on peach and pear in northern FLORIDA. The problem remained on nursery stock and infested plants were destroyed. If the recommended spray schedule was followed, no particular problem on commercial peaches occurred. San Jose scale continued to be the most important scale affecting peach, apple, plum, and pear in northern and central ALABAMA. In MONTANA an eradication program in Plains, Sanders County, has been underway on this species as winter weather in that area does not freeze out the pest. Infestations were heavy in unsprayed apple and pear orchards in Douglas County, OREGON, in 1967 and generally increased on most deciduous fruits and almonds in CALIFORNIA.

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) has become one of the more important scale insects on peach and plum in southern and central ALABAMA and continues serious on commercial peaches in central and northern FLORIDA. Numbers were light in several peach orchards in the Piedmont and Tidewater areas of VIRGINIA. A severe infestation of this species and EUROPEAN FRUIT LECANIUM (*Lecanium corni*) in one large orchard in Nelson County prevented the sale of much fruit because of the presence of a black fungus. OYSTERSHELL SCALE (*Lepidosaphes ulmi*) egg hatch averaged about 2 percent on apple trees in Dane County, WISCONSIN, by May 31, and about 50 percent of the crawlers had emerged. By June 8 egg hatch was complete and 80 percent of the crawlers were exposed. SCURFY SCALE (*Chionaspis furfura*) was heavy on apple at Lokota, NORTH DAKOTA. European fruit lecanium damage was normal on a few fruit plantings in Lower MICHIGAN. Egg hatch began in mid-June and crawlers peaked in late June in the southern counties. GLOBOSE SCALE (*Lecanium prunastri*) was very heavy on ornamental plum in New Castle County, DELAWARE, with crawlers observed in mid-June.

APPLE MAGGOT (*Rhagoletis pomonella*) emergence began July 4 in the Monmouth cages and numbers peaked on July 19 when emergence was 50 percent complete in MAINE. Emergence was almost complete (99.5 percent) on August 21. The last adult was recovered on September 12. Cage populations decreased due to much water in the soil under the enclosures. Damage in untreated orchards indicated natural populations were average or slighty higher than usual. Adults were observed in early July in RHODE ISLAND. Damage was inconspicuous in commercial orchards and damage reports on homegrown fruit were fewer than usual. Apple maggot damage increased slightly in a few NEW YORK orchards probably due to increasing the time interval between sprays, especially during July and early August. Infestations were typically severe in unsprayed blocks and backyard plantings in NEW JERSEY but caused very little damage in commercial plantings. Apple maggot activity increased in the northern two-thirds of PENNSYLVANIA while all other major fruit pests remained light in the State. Adult emergence began in southwest MICHIGAN the last week of June and properly timed sprays were successful. Apple maggot was found farther south than normal in ILLINOIS in 1967, although damage did not occur as far south this year. In WISCONSIN adults began appearing in sticky apple traps in the southern area by June 30. An intensive survey across the southern half of the State revealed that adults peaked in late July and early August. A second and much lower peak occurred in late August. Overall adult numbers were less than half of those in 1966. The highest consistent populations in the southern 3 tiers of counties appeared in Dane and Sauk Counties with isolated infestations in Washington, Iowa, Jefferson, and Dodge Counties. The first emergence in MINNESOTA occurred in the Minneapolis and St. Paul area on June 9 and in the Duluth and Two Harbor area on July 31. Trap collections in most locations were higher in 1967 than in 1966. Apple maggot continues to be a major problem on backyard apple trees

CHERRY FRUIT FLY (*Rhagoletis cingulata*) and BLACK CHERRY FRUIT FLY (*R. fausta*) caused minor damage to cherries in NEW YORK in 1967. *R. cingulata* adults first appeared in Kent County, MICHIGAN, on June 15 and in Oceana County on June 16. *R. fausta* adults appeared in Benzie County on June 13. Properly timed sprays were successful. Controls for a CHERRY FRUIT FLY (*R. cingulata indifferens*) were applied in most orchards in the Flathead Lake area and Bitterroot Valley of MONTANA. Some isolated infested trees were treated. The first adults appeared on May 17 in Yakima County, WASHINGTON, while adults of this species and black cherry fruit fly emerged May 29 in Marion County, June 2 in Hood River County, and June 25 in Umatilla County, OREGON. Control was satisfactory in treated orchards.

WALNUT HUSK FLY (*R. completa*) larvae were taken from walnut husks in Clark and Skamania Counties in WASHINGTON for new county records in 1967. Walnut husk fly lightly infested black walnuts for the first time in East Portland, Multnomah County, and English walnuts in Roseburg, Douglas County, OREGON. Populations were widespread with much variation throughout CALIFORNIA and caused very late damage. Infestations were less than normal and damage ranged moderate to light in UTAH.

PLUM CURCULIO (*Conotrachelus nenuphar*) was very active as indicated by the complete loss of unsprayed fruit in MAINE. Commercial plantings were generally under good control programs and damage was held to a minimum. The problem is general but especially troublesome in the southern area. Adults were collected from May 28 through July 6 in RHODE ISLAND although numbers were not conspicuous. Damage was almost nonexistent in well-sprayed apple orchards in NEW YORK, but a damage potential was shown in abandoned orchards or in orchards where controls were poorly timed or applied. Larvae, mostly this species, were found in cherries principally due to the delayed application of postbloom spray. Plum curculio was difficult to find in well-managed orchards, although much damage occurred in unsprayed blocks and in backyard plantings in NEW JERSEY. Very little damage occurred in commercial orchards. In VIRGINIA emergence and oviposition were retarded due to unfavorable weather during April and May. Very few eggs were laid until after May 21 and no second generation developed. These events were unusual. Infestations were controlled and caused little damage to apple in the State. By mid-May adults had begun feeding and ovipositing on cherries and plums in OHIO. The first full-grown larvae of the season began to emerge from dropped plums in the third week of June, and the new generation of adults appeared in the northeastern section in the first week of August. In June damage was serious to plums, cherries, and apples. Little damage occurred in ILLINOIS. In 29 of the outstanding commercial apple orchards, 1 curculio damage per 2,000 fruits examined appeared on the trees and half of the damaged fruit was found in one orchard. No curculio damage was found in 30 orchards during a random peach harvest survey. Plum curculio occurred statewide and was one of the most serious pests of peach, plum, and apple fruits in ALABAMA. Populations remained at low levels with little damage in KANSAS. This species and PLUM GOUGER (*Anthonomus scutellaris*) ranged light to heavy on native plum trees throughout OKLAHOMA.

A FALSE POWDER-POST BEETLE (*Melalgus confertus*) damaged backyard fruit trees and ornamentals in Jackson and Douglas Counties, OREGON. Damage increased this year in Douglas County. *M. confertus* damaged prune and apple trees in a few locations and was more prevalent in 1967 than in other years in CALIFORNIA. PACIFIC FLATHEADED BORER (*Chrysobothris mali*) was also more prevalent than usual in the State. DRIED-FRUIT BEETLE (*Carpophilus hemipterus*) heavily infested peach fruits in Clark County, NEVADA, in August, and a SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata tenella*) fed on blossoms of pears, apples, and peaches in the Stewart District of Cochise County, ARIZONA. Damage was severe in early April in Cochise County.

SHOT-HOLE BORER (*Scolytus rugulosus*) was generally light on deciduous fruits in CALIFORNIA and was common in old and neglected stone fruit orchards in UTAH. Numbers were conspicuous at Moab, Grand County, and in some home orchards in Salt Lake and Box Elder Counties. A JUNE BEETLE (*Cotinis texana*) fed on stone fruits in Maricopa and Pima Counties, ARIZONA, in late July and on ornamental peaches during mid-July at Tucson, Pima County. RED-HEADED ASH BORER (*Neoclytus acuminatus*) heavily infested apple trees near San Angelo in Tom Green County, TEXAS, and TWIG GIRDLER (*Oncideres cingulata*) damaged persimmon and pecan trees in central, north-central, east-central, northwest, and southeast areas of OKLAHOMA from mid-October to mid-November.

PECAN WEEVIL (*Curculio caryae*) was very destructive late in the season in a few groves near Monticello, FLORIDA, and ranged light to heavy throughout many of the pecan-growing regions of TEXAS. Infestations were heavy in Junction, Menard, and Comanche and were found for the first time in Taylor County, Texas. Adult emergence began in east-central OKLAHOMA in early July and infestations were heavy in many areas by mid-August. Damage continued until mid-November. Pecan weevil was more common in KANSAS in 1967 than in 1966, but few infestations were of economic importance.

PEAR SAWFLY (*Hoplocampa brevis*) adults were collected on pear blossoms at Johnston, RHODE ISLAND, May 22. PEAR-SLUG (*Caliroa cerasi*) infested pear, cherry, and plum in 1967 in Hamilton, Billings, Polson, and Bozeman, MONTANA. Pear-slug damage to pear and cherry foliage was occasionally severe locally, but normal for UTAH. Pear-slug skeletonized foliage of stone fruits and pears in northwestern NEW MEXICO orchards.

TARNISHED PLANT BUG (*Lygus lineolaris*) fed on fruit buds in the Monmouth and Readfield areas, MAINE, on May 16, but populations were lighter than in 1966 and feeding damage was not as evident. Tarnished plant bug caused less than 2 percent damage to the peach crop in VIRGINIA. A LEAF-FOOTED BUG (*Leptoglossus zonatus*) damaged immature pecan nuts at Phoenix in Maricopa County, ARIZONA, in mid-September, and EUROPEAN EARWIG (*Forficula auricularia*) damaged fruit buds early in the season and ripening walnut fruit late in the season in CALIFORNIA.

EUROPEAN RED MITE (*Panonychus ulmi*) eggs began to hatch May 24 at Monmouth, MAINE. Cool, wet weather appeared to affect numbers more than the pattern of development. Adults and summer eggs were present at Monmouth and Kents Hill on June 9. Populations appeared normal by the second generation, but overall seasonal levels were somewhat below average. Although the first appearance in VERMONT was late, it bronzed some Red Delicious apples in Addison County. European red mite continued to be a major control problem in NEW YORK. Due to cool, wet weather, populations increased slowly during the spring and early summer but developed rapidly in late July and August. In most cases summer acaricides had to supplement prebloom oil applications. In NEW JERSEY numbers were generally lower on apples in 1967 than in 1966. Generally, European red mite was very light on peaches throughout the State. Late in the summer, several heavy infestations damaged foliage in 2 Burlington County orchards and one block was defoliated by late August. European red mite infested apples much less in 1967 than in the past few years in DELAWARE. During late June and July numbers were difficult to control in several apple orchards in Washington County, MARYLAND, and populations were the lowest in several years in VIRGINIA. A few peach orchards had severe infestations. European red mite egg hatch was well underway in southern OHIO by mid-April when the first major hatch occurred in northern counties. The first summer eggs appeared during the first week of June. The buildup generally began in the last half of June and continued through July. Averages of up to 40 per leaf and small amounts of bronzing were noted in some orchards. Cool August temperatures inhibited the usual large summer buildup. Regularly treated commercial orchards had no problems.

Egg hatch in southwestern MICHIGAN started on May 1. By May 26 eggs from first-brood adults appeared on leaves in the area and hatch was underway by early June. Fewer problems occurred in most fruit areas due to a cool summer, adequate rainfall, and good chemical control programs. The need for preventive programs and special miticidal sprays still classed this species as one of the most expensive fruit pests. Populations peaked in August rather than in July, generally, with the usual great variation among orchards credited to individual spray programs. Some bronzed orchards became apparent in late August and early September. Early in September the overwintering oviposition on the twigs and the calyx ends of apples was underway. Good early European red mite control was obtained by most growers using oil in ILLINOIS. But with a warm June, this species and a SPIDER MITE (*Tetranychus* sp.) began their normal buildup. *P. ulmi* was a pest in many IOWA orchards. European red mite was found for the first time in Mesa County, COLORADO, in a young apple planting in the Clifton area and was very abundant on deciduous fruits and almonds in CALIFORNIA. Overwintering eggs hatched during the fourth week of April on pear trees in Hood River County, OREGON. An early warm period in February followed by cold, unsettled weather during March and April apparently delayed hatch. Deutonymphs were not observed until May 10, about a month later than usual. A hot, dry summer contributed to serious problems in all fruit-growing areas. European red mite damaged some commercial and backyard orchards in WASHINGTON.

TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) damaged tree fruit, especially in central and eastern WASHINGTON and moved from overwintering sites under pear bark scales to pre-pink buds in the second week of March in Hood River County, OREGON. It was actively feeding on pears by the late pink stage and had defoliated many cherry and D'Anjou pear trees in The Dalles area of Wasco County. This species was very general on most fruit trees in CALIFORNIA. Infestations increased to high levels and caused some loss to apple fruit color and size in Mesa and Delta Counties, COLORADO. *T. urticae* adults and nymphs were present on fruit crops in several areas of MICHIGAN during the summer, but major problems were scarce in 1967. This species and *P. ulmi* were in several orchards which showed bronzing in August and September.

A SPIDER MITE (*T. mcdanieli*) was light on apples in San Bernardino County, CALIFORNIA, where it had been a pest. This species, in general, was the most abundant on record in orchards in the Milton-Freewater area of OREGON and seriously damaged many orchards in the State. *T. mcdanieli* was abundant on fruits in May in orchards in the Spokane and central WASHINGTON areas. An integrated control program was attempted in certain localities on apples and other tree fruits in the central area. In IDAHO it infested 11 of 13 (severe in 3) orchards in Canyon, Gem, and Payette Counties on May 12. *T. mcdanieli* averaged 50 per leaf on the inner half of the trees. Eggs, nymphs, and adults of the predacious phytoseiid mite (*Typhlodromus occidentalis*) ranged up to 3 or 4 per leaf in 6 of the orchards. Damage was the lightest in several years in UTAH. This species and others were a problem mainly on apple foliage in orchards in San Juan, Bernalillo, Lincoln, Sandoval, and Rio Arriba Counties, NEW MEXICO.

SPIDER MITES were light during most of the season in MISSOURI. TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) increased on peaches during August but did not affect the crop. *Tetranychus* spp. increased during July and occasionally silvered leaves in the southern area. Spider mites were noted in more NEW YORK orchards in 1967 than in the past several years. In many cases, the populations that built up early on the succulent cover crops and weeds migrated to trees when the orchards were mowed in mid-June, and controls were then required. However, by late August and early September, European red mite became dominant in the mite problem areas. *Tetranychus* sp. damaged stone fruits late in the season in UTAH where *T. mcdanieli* had been dominant on apples and pears for the past several years. *Tetranychus* sp. was heavy in peach orchards in the Piedmont area and the extreme southeast corner of VIRGINIA. Foliage damage was severe and affected fruit size. *Tetranychus* sp. ranged light to moderate in some localities of MAINE but was well controlled and caused only minor problems. YELLOW SPIDER MITE (*Eotetranychus carpini borealis*) increased to high levels in pear orchards in Jackson and Douglas Counties, OREGON, during July and August.

APPLE RUST MITE (*Aculus schlechtendali*) infestations and damage were evident throughout MAINE by July 12. Damage was found in the same areas of the State affected in 1966. Foliage damage was mainly light with some moderate injury in some locations. PEACH SILVER MITE (*A. cornutus*) was abundant in peach orchards at harvest in COLORADO but its importance was cancelled due to a crop reduction during a freeze. PEAR RUST MITE (*Epitrimerus pyri*) was abundant in Mesa County, Colorado, and caused leaf damage to the light crop of pears. This species occurs rarely in a normal crop year in the State. PEAR LEAF BLISTER MITE (*Eriophyes pyri*) was conspicuous on some apple and pear trees in the Nephi and Levan area of Juab County, Richfield in Sevier County, and Moab in Grand County, UTAH. *E. pyri* heavily damaged many pear trees in the Missoula, Bitterroot Valley, and Sanders County areas of MONTANA.

Unspecified MITES were much less troublesome than usual in VIRGINIA due in part to vigorous control measures, lower temperatures, more cloud cover, and possibly the decreased use of insecticides for the past 2 years. RUST MITES may have been heavier than in most years in the State. Mites were present in most pecan orchards but did little damage in FLORIDA. These pests remained the most difficult control problem on apples in ILLINOIS and caused damage to a few peach blocks in the State. Cool weather delayed development several weeks in the southern area. This season was a moderate year for mites as satisfactory controls were maintained and high populations were not reached. Mite damage developed later than usual on apples and pears in UTAH and numbers were generally very prevalent and damaging in 1967 in CALIFORNIA.

CITRUS

Highlights

GLOVER SCALE was the most abundant scale in Florida during the first half of 1967. CALIFORNIA RED SCALE threatened some citrus in the Rio Grande Valley of Texas. BLACK SCALE reached unusually high levels and was the scale of greatest concern from July through September in Florida. CITRUS THRIPS was very prevalent in citrus areas throughout California. CITRUS RED MITE was severe and difficult to control in Tulare County, California, and was more abundant than in the past 6 years from January to March in Florida. TEXAS CITRUS MITE was at record high levels in March, April, May, and mid-June in Florida and threatened some citrus in the Rio Grande Valley of Texas. CITRUS RUST MITE was unusually abundant in Florida in 1967 as some of the highest monthly populations in 16 years were recorded.

SALT-MARSH CATERPILLAR (*Estigmene acrea*) necessitated the erection of barriers during mid-October in the Yuma Valley in Yuma County, ARIZONA, to protect mature citrus trees. CABBAGE LOOPER (*Trichoplusia ni*) damaged young terminals in plantings near the desert area during early October in Yuma County. ORANGE-DOG (*Papilio cresphontes*) was generally most troublesome from early June to November in Maricopa, Pinal, and Yuma Counties, and a LEAF ROLLER MOTH (*Platynota stultana*) made treatments necessary in mid-July and early October in citrus nurseries in Yuma County, Arizona. Another LEAF ROLLER MOTH (*Xylomyges curialis*) infested citrus and required controls in San Bernardino County, while still another LEAF ROLLER MOTH (*Ptycholoma peritana*) caused some damage in Tulare, Riverside, and San Bernardino Counties, CALIFORNIA. ORANGE TORTRIX (*Argyrotaenia citrana*) caused spotted damage to southern California citrus despite the normal effectiveness of biological agents. WESTERN TUSSOCK MOTH (*Hemerocampa vetusta*) infested citrus in San Bernardino County, California.

An ARMORED SCALE (*Unaspis citri*) continued to spread within groves and to infest more new groves than before in FLORIDA. By midseason, 11 percent of the survey groves were infested and caused concern. Precautions were taken to prevent spreading through the movement of nursery stock. A special survey was continued and all infested nursery stock was quarantined. The heaviest infestations were still in Orange, Lake, Seminole, and neighboring counties. GLOVER SCALE (*Lepidosaphes gloverii*) was the most abundant scale during the first half of 1967 in Florida, but then decreased to the normal high level in July. This high level continued until mid-August, 2 weeks later than usual. Numbers then decreased to the normal low level by mid-September and continued low the rest of 1967. CALIFORNIA RED SCALE (*Aonidiella aurantii*) mostly ranged light to moderate and caused little economic damage in 1967 in TEXAS, but threatened some citrus in the Rio Grande Valley. California red scale infested 35 acres of untreated citrus in November and was found in 3 additional untreated areas in December in Maricopa County, ARIZONA, during late 1967. Populations increased and required much control in CALIFORNIA. YELLOW SCALE (*A. citrina*) was general in Tulare County, but spreading in Fresno County, California, and PURPLE SCALE (*L. beckii*) was light in Orange County, but was increasing and spreading in San Diego County.

BROWN SOFT SCALE (*Coccus hesperidum*) lightly infested unsprayed dooryard citrus in southern TEXAS during late March and required control treatments in San Luis Obispo, Fresno, and Ventura Counties, CALIFORNIA. CITRICOLA SCALE (*C. pseudomagnoliarum*) was more prevalent from Kern County north than in other years, and BLACK SCALE (*Saissetia oleae*) was partially controlled by biological agents, although local buildups did occur in California. Black scale reached unusually high levels after a slow start but became the scale of greatest concern from July through September in FLORIDA.

COTTONY-CUSHION SCALE (*Icerya purchasi*) was light and spotty in Yuma County, ARIZONA, during early May and was controlled by vedalia, *Rodolia cardinalis*. Infestations were local on commercial and dooryard citrus in CALIFORNIA.

MEALYBUG populations were lower than the usual normal low levels for winter and early spring in FLORIDA but increased rapidly after mid-May and peaked in late June at the normal high level of recent years. Mealybugs were moderate in July but decreased to normal low levels by October. CITRUS MEALYBUG (*Planococcus citri*) were very abundant on citrus in San Diego and Santa Barbara Counties, CALIFORNIA.

Unspecified APHIDS were general in most citrus areas in CALIFORNIA and increased faster than usual in March, then increased sharply in April, peaked above normal level in mid-April, and quickly decreased to a low level in May in FLORIDA. GREEN PEACH APHID (*Myzus persicae*) was heavy on new terminal growth and weed hosts in groves in Yuma County, ARIZONA, during late March and COWPEA APHID (*Aphis craccivora*) was light and scattered on young terminal growth from March to December in the same county.

LEAFHOPPERS (*Empoasca* spp.) were moderate on mature navel and Valencia oranges, tangerines, and grapefruit in Maricopa County, ARIZONA, and controls were required in November to prevent rind damage. Other LEAFHOPPERS (*Erythroneura* spp.) were heavy on Marsh grapefruit and navel oranges in Chandler Heights area, Maricopa County, during November and December in the same State. Adults of a LEAFHOPPER (*Oncometopia nigricans*) were abundant on young mango trees at Homestead, FLORIDA, during late August, while WHITEFLIES fluctuated slightly above and below normal levels in the State.

FULLER ROSE WEEVIL (*Pantomorus cervinus*) caused much damage locally in San Diego and Butte Counties while ARGENTINE ANT (*Iridomyrmex humilis*) presented a local problem in citrus in Orange County, CALIFORNIA. EUROPEAN EARWIG (*Forficula auricularia*) damaged some young citrus in Butte County, California. A LEAF-FOOTED BUG (*Leptoglossus zonatus*) was troublesome on fruit during mid-October in Maricopa County, ARIZONA.

CITRUS THRIPS (*Scirtothrips citri*) ranged light to moderate from March to mid-April in ARIZONA and sulfur treatments were made from mid-March through April. Controls were applied from May to late August to protect new terminal growth in Maricopa and Yuma Counties. Citrus thrips was very prevalent in citrus areas throughout CALIFORNIA.

CITRUS RED MITE (*Panonychus citri*)was severe and difficult to control in Tulare County and other southern CALIFORNIA growing areas. Infestations were first detected May 3 in 8 lemon sections on the Yuma Mesa in Yuma County, ARIZONA. In October and November additional infestations were found on the Yuma Mesa. This was a new State record. Citrus red mite was more abundant than in the past 6 years from January to March in FLORIDA but concerned only scattered groves, mostly in the north and west citrus districts. Numbers were above normal in April but below normal in May, June, and for the rest of 1967. TEXAS CITRUS MITE (*Eutetranychus banksi*) departed from the usual trend as numbers were at record high levels in March, April, May, and mid-June, but then decreased to normal levels by September. By late November populations were below normal and very low, but by mid-December had increased to moderate to heavy levels. Infestations ranged light to moderate and caused little economic damage in 1967 in TEXAS, but threatened some citrus in the Rio Grande Valley.

CITRUS FLAT MITE (*Brevipalpus lewisi*) ranged moderate to heavy from late March through November on citrus in Yuma County, ARIZONA. Controls were applied repeatedly to prevent the scarring of fruit. Early control was required in Tulare County, CALIFORNIA, for this pest. CITRUS BUD MITE (*Aceria sheldoni*) was generally light in Santa Barbara and Orange Counties while CITRUS RUST MITE (*Phyllocoptruta oleivora*) varied on coastal citrus in southern California. Citrus rust mite was unusually abundant in 1967 and was the most important mite in FLORIDA. The highest populations in 16 years were recorded for several months.

OTHER TROP. & SUBTROP. FRUITS

OLIVE SCALE (*Parlatoria oleae*) was quite prevalent on olive plantings at many locations in CALIFORNIA. BLACK SCALE (*Saissetia oleae*) infested olive at a few locations in the State. FIG SCALE (*Lepidosaphes ficus*) was not held in check by biological control agents in California during 1967. PINEAPPLE MEALYBUG (*Dysmicoccus brevipes*) adults were generally moderate on leaves of 1.6 million to 2 million Spanish pineapples at a farm in Hendry County, FLORIDA, during late July.

GREENHOUSE THRIPS (*Heliothrips haemorrhoidalis*) populations were generally light and controlled on avocados in Santa Barbara County, CALIFORNIA. OMNIVOROUS LOOPER (*Sabulodes caberata*) was very prevalent on avocados in Ventura County. A JUNE BEETLE (*Cotinis texana*) damaged fig fruit in Tulare County and a few locations in southern California. A SEED CHALCID (*Megastigmus pistaciae*) was taken in pistachio nuts at Chico in Butte County, California, for a new North American record. A LEAF-FOOTED BUG (*Leptoglossus zonatus*) caused heavy damage to dates and pomegranates in backyard plantings from mid-August to early October in Graham, Maricopa, Pinal, and Yuma Counties, ARIZONA. PAPAYA FRUIT FLY (*Toxotrypana curvicauda*) was very severe throughout the summer and fall in eastern Palm Beach County, FLORIDA. Many gardeners and homeowners stated that controls were unsuccessful.

AVOCADO BROWN MITE (*Oligonychus punicae*) was general on avocado in Santa Barbara County, CALIFORNIA. Biological control usually holds this mite in check. AVOCADO RED MITE (*Oligonychus yothersi*) built up as late as or a little later than usual in FLORIDA. It was present on avocados at Homestead for a shorter period during 1967. All stages of an ACARID MITE (*Tyrophagus sp.*) infested Spanish pineapples at a farm in Hendry County, Florida.

SMALL FRUITS

Highlights:

WESTERN GRAPE LEAF SKELETONIZER infestations were the heaviest since first discovered in Nevada. ROSE CHAFER caused heavy damage to grapes in Maine. STRAWBERRY APHID was heavier than normal in Washington. SPIDER MITES were of some concern in a few areas.

GRAPE LEAF SKELETONIZER (*Harrisina americana*) was a problem on untreated grapevines at Gainesville, FLORIDA, from April to October. This pest heavily damaged plantings near Crockett in Houston County, TEXAS. WESTERN GRAPE LEAF SKELETONIZER (*H. brillians*) destroyed abandoned commercial vineyards and backyard plantings in the following ARIZONA counties: Maricopa and Pinal during mid-June, Pima during mid-August, Cochise during early September, and Gila during early October. Western grape leaf skeletonizer damage in UTAH ranged light to moderate in the St. George, Hurricane, and La Verkin area of Washington County. Adults of the western species in NEVADA emerged about a month earlier than normal in Clark County. Defoliating entire vines, larvae caused the heaviest damage since the discovery of this pest in the area.

Several lepidopterous pests were a problem on grapes in CALIFORNIA. A LEAF ROLLER MOTH (*Platynota stultana*) became a serious pest in the San Joaquin Valley. GRAPE LEAF FOLDER (*Desmia funeralis*), a cyclic pest, is on the increase in grape plantings, and *Euxoa* sp., also a periodic pest, locally damaged grape plantings in Fresno County. Unspecified CUTWORMS were severe on this crop in the State. BLACK CUTWORM (*Agrotis ipsilon*) and BEET ARMYWORM (*Spodoptera exigua*) damaged some strawberry plantings in California, and LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) damaged strawberry crowns in a few southern counties. STRAWBERRY LEAF ROLLER (*Ancylis comptana fragariae*) was common in northern and central UTAH. CURRANT BORER (*Ramosia tipuliformis*) was normal and common on red currant at Huntsville in Emery County, Logan in Cache County, and the Payson area of Utah County, Utah. RASPBERRY CROWN BORER (*Bembecia marginata*) was damaging in the Flathead Lake area and along the Mission Mountains in MONTANA. Heavy populations of CURRANT SPANWORM (*Itame ribearia*) damaged currants at Fargo, NORTH DAKOTA. RASPBERRY LEAF ROLLER (*Exartema permundanum*) infested various fields of Boyne raspberries in the northern part of MINNESOTA for the second consecutive year. ROSE CHAFER (*Macrodactylus subspinosus*) infestation and damage were very heavy on grapes in the Portland area of MAINE. In some instances it destroyed the entire crop. A LEAF BEETLE (*Glyptoscelis squamulata*) caused more than the usual amount of damage in grape plantings in a few CALIFORNIA locations. Populations of a FALSE POWDER-POST BEETLE (*Melalgus confertus*) were heavier in vineyards in a few counties of northern California.

STRAWBERRY ROOT WEEVIL (*Brachyrhinus ovatus*) and a WEEVIL (*B. rugosostriatus*) damaged some strawberry and raspberry patches in Salt Lake, Weber, Davis, Box Elder, Utah, and Cache Counties in UTAH; BLACK VINE WEEVIL (*B. sulcatus*) was also damaging in some Utah locations. STRAWBERRY WEEVIL (*Anthonomus signatus*) caused light to medium bud injury on strawberries in Prince Georges and Wicomico Counties in MARYLAND. Heavy larval populations of strawberry root weevil injured strawberry at West Kingston, RHODE ISLAND, in early July. Strawberry weevil activity in MAINE was quite low. Damage was negligible in most cases. STRAWBERRY CROWN BORER (*Tyloderma fragariae*) killed a major portion of a new strawberry planting at Skowhegan. This pest is not common on strawberry in Maine.

Adults of a SAP BEETLE (*Stelidota geminata*) first appeared in southwestern MICHIGAN strawberry fields about June 8. Baits treated with an organic phosphate gave good control. The overall problem was greatly reduced from that in 1966 when this beetle was first noted and caused extensive monetary loss to the strawberry industry in the State. DUSKY SAP BEETLE (*Carpophilus lugubris*) adults fed on ripe strawberries in Yakima County, WASHINGTON, during July. RASPBERRY CANE BORER (*Oberea bimaculata*) adults were found on raspberry canes at Bountiful, Davis County, in UTAH.

STRAWBERRY APHID (*Chaetosiphon fragaefolii*) was 3-6 times heavier than normal on strawberries during May in Clark County, WASHINGTON. In CALIFORNIA strawberry aphid was a local pest of strawberries in a few southern locations. APHIDS in general were less troublesome on small fruits than other crops. An APHID (Amphorophora agathonica) was heavy on red raspberry foliage in the Orem and Provo area of Utah County, the Murray area of Salt Lake County, and the Logan and Wellsville area of Cache County in UTAH. CURRANT APHID (Cryptomyzus ribis) caused conspicuous cupping and discoloration of red currant foliage at Huntington, Emery County; in the Provo and Payson area, Utah County; and in Salt Lake, Weber, and Cache Counties in UTAH.

LEAFHOPPERS (Erythroneura spp.) were widespread and very damaging in CALIFORNIA. In UTAH, VIRGINIA-CREEPER LEAFHOPPER (E. ziczac) and Erythroneura spp. discolored grape foliage at Moab, Grand County, and in Washington, Salt Lake, Davis, and Box Elder Counties. The third collection of GRAPE PHYLLOXERA (Phylloxera vitifoliae) in FLORIDA was made at a second location at Lady Lake, Lake County. The second collection from Altoona, Lake County, was a new county record.

BLUEBERRY THRIPS (Frankliniella vaccinii) gradually increased in numbers and infestation locales in MAINE. Several new points in Washington County have reported this insect. The 1967 emergence pattern was disrupted by erratic weather conditions. However, BLUEBERRY MAGGOT (Rhagoletis mendax) had emergence dates and patterns that were normal. Populations were much higher than 1966 levels. Heavy numbers infested untreated or poorly treated areas in Maine. Blueberry maggot adult emergence began in southwestern MICHIGAN during the last week of June. Properly timed sprays were successful.

SPIDER MITES (Tetranychus spp.) built up to economic numbers on strawberries in Allegany and Prince Georges Counties, MARYLAND, with warm weather during May. A SPIDER MITE (Tetranychus sp.) was not as persistently abundant as it was in 1967 on strawberries at Homestead, FLORIDA. It damaged some strawberries in Hardee County during late February and early March. Tetranychus sp. injury to raspberry foliage was below normal in Rich and Cache Counties, UTAH. TWO-SPOTTED SPIDER MITE (T. urticae) was difficult to control on strawberries in CALIFORNIA. CARMINE SPIDER MITE (T. telarius) was very damaging to strawberries in the southern area. Another SPIDER MITE (Eotetranychus willamettei) damaged some grapevines in Fresno County, California. CYCLAMEN MITE (Steneotarsonemus pallidus) continued to be a serious pest of everbearing strawberry plants in MINNESOTA, but caused very little damage to plantings in very few areas of California.

EARWIGS were a problem in some raspberry and strawberry patches in northern and central UTAH. Damp, cool weather favored SLUGS and SNAILS in strawberry patches in ILLINOIS and were a problem in several commercial plantings in south and central areas of the State. Slugs moderately injured home garden strawberry plantings in many locations of MAINE.

GARDEN SYMPHYLAN (Scutigerella immaculata) lightly damaged small fruit for the third consecutive year in southwestern WASHINGTON.

UNITED STATES DEPARTMENT OF AGRICULTURE
Hyattsville, Maryland 20782

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF AGRICULTURE